

**Work Order ID 57910**

April 20, 2010 8:54:03 AM

Page 1

Item ID: D212-664-101

Accept



Setup Start



Revision ID:

Item Name: Crosstube Fwd

Stop



Start Date: 20/04/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 07/05/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:



Date: 10-4-20 Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
----------	--------------

D212-664-141	Rev D
--------------	-------

100



DOCUMENT CONTROL

DC

Document Control

Memo

0.00

0.00

0.00

0.00

110



Photocopy bluefile and create labels as per PPP D212-664-101 CHG003

5 10/04/27

Packaging

Pick Kit

Packaging

Packaging

Memo

0.00

A-4-27 SL

(X)

MB 10-04-21

120



BENDING MACHINE - CROSSTUBES

CNC Bend 2

CNC Alpha 160 Bender

Memo

0.00

0.00

Bend tube as per Dwg D212-664-141 using CNC bender program 212-fw and Folio FT015

(Y)

MB 10-04-21

B57910 D212-664-101

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Approvals: Process Plan: \_\_\_\_\_

Date: \_\_\_\_\_

Tooling: \_\_\_\_\_

Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_

Date: \_\_\_\_\_

SPC (Y/N): \_\_\_\_\_

Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center ID

QC

Quality Control

Operation  
Description

QC15- Crosstube Dimensional Check

Memo

Set Up/  
Run Hours

0.00

Draw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

140



Crosstubes

Crosstubes

Crosstubes

Memo

0.00

1-Drill pilot holes in tube as per Dwg D212-664-141 using drill Jig DT8548 &amp; DT8549

2-Ream hole to finish size in tube as per Dwg D212-664-141 using drill Jig DT8548 &amp; DT8549. Check dimensions between holes, both sides on both cuffs, to ensure alignment with saddle holes.

3-Scribe part # and batch # using vibrating stylus as per Dwg D212-664-141

4-Deburr &amp; Inspect for surface damage. Repair damage within limits as per Dwg D212-664-141

0.00

0.00

*S 10/04/21*

*✓*

*SAD/MB*

*✓*

*✓ 04-04-21*

*AWM, 0-4-22*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
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**Work Order ID 57910**

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Start Date: 20/04/2010 Start Qty: 1.00



Cust Item ID:

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Customer:

Reference:

Approvals:	Process Plan:	Date:	Tooling:	Date:	Run	Start
	QC:	Date:	SPC (Y/N):	Date:	Stop	



Sequence ID/ Work Center ID	Operation Description	Memo	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150 	Crosstubes Chemical Conversion HandFXtube		0.00				1	✓		DAWM 04-22
Hand Finishing Crosstubes		Chemical Conversion Coat within 24 hours of bending and drilling	0.00							
160 	QC5- Inspect part completeness to step on W/O	Memo	0.00	S10412						
QC Quality Control			0.00		⑩					
170 	Outsource process - NDT per QSI038 4.1	Memo	0.00							
Outsource2 Outsource process - NDT	Liquid Penetrant Inspection as per QSI 038 Issue P/O: 11733 LPI as per ASTM 14T7 Level 2 Attach copy of NDT results to work order		0.00							11733-4-22 C

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
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NOTE: Date & initial all entries



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Cust Item ID:

Required Date: 07/05/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_

Date: \_\_\_\_\_

Tooling: \_\_\_\_\_

Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_

Date: \_\_\_\_\_

SPC (Y/N): \_\_\_\_\_

Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

200

Spray Painting per QSI005 4.2  
SprayPaint

0.00

10 04 23 11

SprayPaint

Memo

0.00

1-Prime inside and outside crosstube as per QSI 005 4.2  
2-Paint outside crosstube with White Imron as per QSI 005 4.2

PRIME:

Start Time: 17:00

Finish Time: 20:00

PAINT:

Start Time: 11:00

Finish Time: 14:00

210



QC14- Inspect Spray Paint

0.00

25 10 04 26

QC

Memo

0.00

Quality Control

Then, Wrap in plastic bag to protect from scratches

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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**Work Order ID 57910**

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Item ID: D212-664-101

Accept



Setup Start



Revision ID:

Item Name: Crosstube Fwd

Stop



Start Date: 20/04/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 07/05/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_

Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_

Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

220



Crosstubes

0.00

*m/ 10 04 26 01*

Crosstubes

Memo

0.00

1- Lightly scuff the bonded area using a 320 grit sand paper and clean the area  
with 41058 wash 'n' wipe2-Install supports with magnobond as per QSI 015 Adhere for 12 Hrs  
A/R 6398 Magnobond Batch: 114021 exp. 01/2011*Torque: m/ 10.04.27*

230



QC5- Inspect part completeness to step on W/O

0.00

*Sud04b2*

*(70) \_\_\_\_\_*

QC

Memo

0.00

240



Pick Kit

0.00

*10-4-27 SF*

Packaging

Memo

0.00

Packaging

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Item ID: D212-664-101

Accept



Setup

Start



Revision ID:

Item Name: Crosstube Fwd

Stop



Start Date: 20/04/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 07/05/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run

Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/  
Work Center ID

250



QC

Quality Control

Operation  
Description

QC4- 100% Inspect kits for completeness

Set Up/  
Run Hours

0.00

Draw  
Number

Rev.

Draw  
Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberReject  
Stamp

S 10/04/27

(X)

260



Packaging

Packaging

Packaging

Memo

0.00

0.00

Rev E

10-4-27

270



QC

Quality Control

QC21- Final Inspection - Work Order Release

0.00

Memo

0.00

10/04/27

U 10/04/27

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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NOTE: Date & initial all entries

# Picklist Print

Page 1

April 20, 2010 8:54:07 AM

Work Order ID: 57910



Parent Item: D212-664-101



Parent Item Name: Crosstube Fwd

Start Date: 20/04/2010

Required Date: 07/05/2010

Comments: IPP Rev:E 04.02.16 Reformat KJ/DS

Start Qty: 1.00

Required Qty: 1.00

IPP Rev:F 06-03-29 Remove Coments on Pick List JLM  
IPP Rev:G 07-04-30 As per Rev C JLM

Component Item ID/ D212-664-101TRN	Replacement Manufactured	Mfg/ Manufactured	Bin No	Primary Last	Route 110	Unit of Each	Qty on 0.0000	Remaining 1.0000	Qty	Date	Status
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Crosstube Turning Detail

D3595-063-450



Manufactured

No

230

Each

54.1200

4.2105



RUBBER CUSHION

MS21920-25



Purchased

No

Warehouse	Loc Qty	Loc Code
-----------	---------	----------

Location

Main Warehouse

LG	54.12	
52447	9.12	
53775	45	

Warehouse	Loc Qty	Loc Code
-----------	---------	----------

Location

Main Warehouse

ST451	72	
109181	25	
113282	46	
113744	1	

B - 57870 MB 1PC  
10-04-21

M 10 04 26

M 10 04 26

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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April 20, 2010 8:54:07 AM

Work Order ID: 57910



Parent Item: D212-664-101



Parent Item Name: Crosstube Fwd

Start Date: 20/04/2010

Required Date: 07/05/2010

Comments: IPP Rev:E 04.02.16 □ Reformat KJ/DS

Start Qty: 1.00

Required Qty: 1.00

IPP Rev:F 06-03-29 Remove Coments on Pick List JLM  
IPP Rev:G 07-04-30 As per Rev C JLM

Component Item ID/	Replacement	Mfg/ Manufactured	Bin	Primary No	Last	Route	Unit of Each	Qty on 63.0000	Remaining 2.0000	Qty	Date	Status
D2893-1						220						

2.75 Support



Warehouse  
Location

Main Warehouse

LG	63
51775	6
53125	15
53340	2
53774	20
56354	20

Loc QtyLoc Code

M 10 04 26

D3428-1



Manufactured No

Placard

Warehouse  
Location

Main Warehouse

ST056	8
55565	8

Loc QtyLoc Code

10-4-27 Sp

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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April 20, 2010 8:54:07 AM

Work Order ID: 57910



Parent Item: D212-664-101



Parent Item Name: Crosstube Fwd

Start Date: 20/04/2010

Required Date: 07/05/2010

Comments: IPP Rev:E 04.02.16 □Reformat □KJ/DS

Start Qty: 1.00

Required Qty: 1.00

IPP Rev:F 06-03-29 Remove Coments on Pick List JLM

IPP Rev:G 07-04-30 As per Rev C JLM

Component Item ID/ AN6-35A	Replacement BOLT	Mfg/ Purchased	Bin No	Primary Last	Route 240	Unit of Each	Qty on 82.0000	Remaining 4.0000	Qty	Date 10-4-27	Status S

## Warehouse Loc Qty Loc Code

### Location

Main Warehouse

ST343	82
112805	2
113422	30
114341	50

Purchased No 240 Each 99.0000 4.0000



10-4-27 S

AN6-36A



Bolt

## Warehouse Loc Qty Loc Code

### Location

Main Warehouse

ST343	99
112314	3
113121	46
114330	50

Purchased No 240 Each 245.0000 6.0000



10-4-27 S

MS21042L6



Nut

## Warehouse Loc Qty Loc Code

### Location

Main Warehouse

ST300	245
111578	245

6

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
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April 20, 2010 8:54:07 AM

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Work Order ID: 57910



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Parent Item Name: Crosstube Fwd

Start Date: 20/04/2010

Required Date: 07/05/2010

Comments:

IPP Rev:E 04.02.16 Reformat KJ/DS

Start Qty: 1.00

Required Qty: 1.00

IPP Rev:F 06-03-29 Remove Coments on Pick List JLM  
IPP Rev:G 07-04-30 As per Rev C JLM

Component Item ID/ AN960JD616	Replacement Purchased	Mfg/ No	Bin Primary	Last	Route 240	Unit of Each	Qty on 49.0000	Remaining 18.0000	Qty	Date	Status
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Washer

MAS1149006631

Warehouse

Location

Main Warehouse

ST347	49
113149	49

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

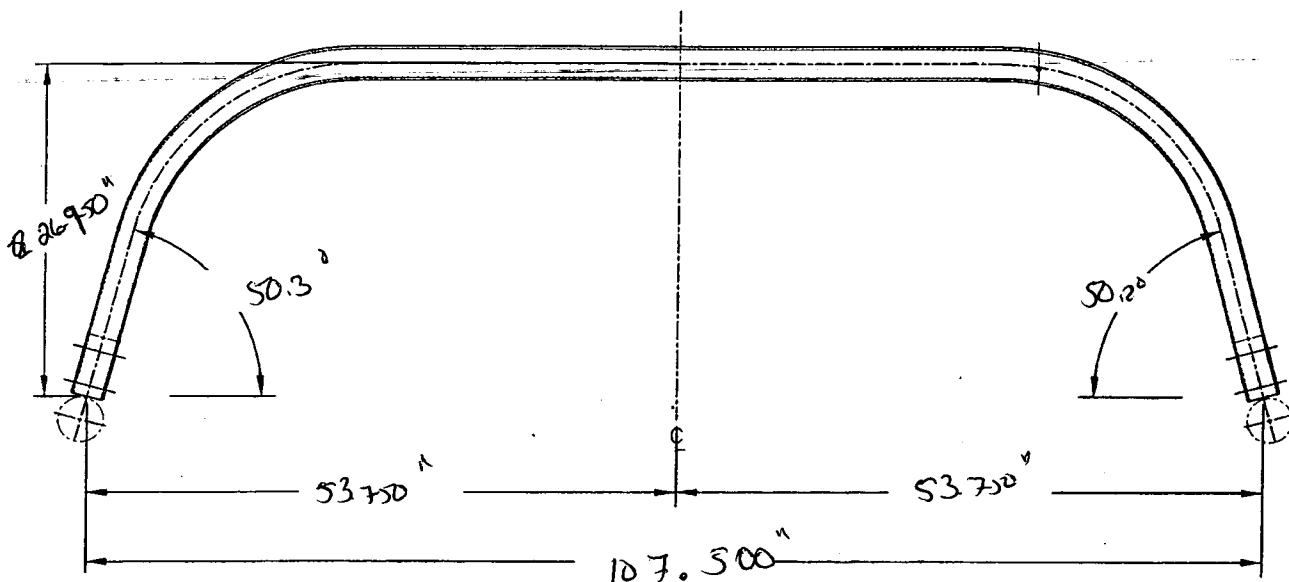
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
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NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	57910
Description: Crosstube High Fwd (205/212/412)	Part Number:	D212-664-101
Inspection Dwg: D212-664-141	Rev: <i>8/2007 Rev 1.2</i>	Page 1 of 1

Required Dimension	Min	Max
Height	26.79	27.05
1/2 Span	53.59	53.85
Angle	49	52
Total Span	107.18	107.7



Comments

QC15 Inspection	<i>S</i>
Date	<i>10/04/12</i>

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	<i>JW</i>
B	07.05.31	Dimensions updated per Dwg Rev C	KJ/JM	<i>JW</i>

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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NOTE: Date & initial all entries

8 7 6 5 4 3 2 1

D

Item	Qty -141	Qty -141B	Part Number	Description
1	X		D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
2	X		D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)
3	1	1	D6005-128	CROSSTUBE
4	2	2	D2893-1	SUPPORT
5	4	4	D3595-063-450	RUBBER CUSHION
6	4	4	MS21920-25	CLAMP (OR MS21920-26)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

**GENERAL NOTES:**

- 1) MATERIAL: MANUFACTURED FROM D6005-128  
FINISHED LENGTH = 128.514±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF  
USING VIBRATING STYLUS
- 7) WEIGHT: D212-664-141 = 33.6 lbs (PER IIN-D212-664)  
D212-664-141B = 33.6 lbs (PER IIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY

RETURN TO

ENGINEERING

UNCONTROLLED COPY

SUBJECT TO AMENDMENT

WITHOUT NOTICE

WORK ORDER

NO. 37910

BB10-420

RELEASED  
2009-10-29

D	REFORMAT/REVISE GENERAL NOTES/PART LIST; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD -141B (ZN B4-2, D4-2); REMOVED REF & ADD TOLERANCES (ZN B4-3, C6-3, C8-3 & B6-3); RELOCATED FLAG #6 PER PAR 08-046 (ZN A5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4	RF	09.09.30
C	REMOVE -851 ABRASION STRIP; ADD MAGNOBOND 6398, CUSHION, REVERSE CLAMPS	PH	07.03.08
B	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	PH	05.02.04
A	NEW ISSUE	PH	00.12.12
REV.	DESCRIPTION	BY	DATE
DESIGN	PH	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	PP	DRAWING NO.	REV. D
MFG. APPR.	DA	D212-664-141	SHEET 1 OF 4
APPROVED	AP	TITLE	SCALE
DE APPR.	DA	XTUBE ASSY (205/212/412 HI FWD)	NTS
DATE	09.09.30	COPYRIGHT © 2009 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

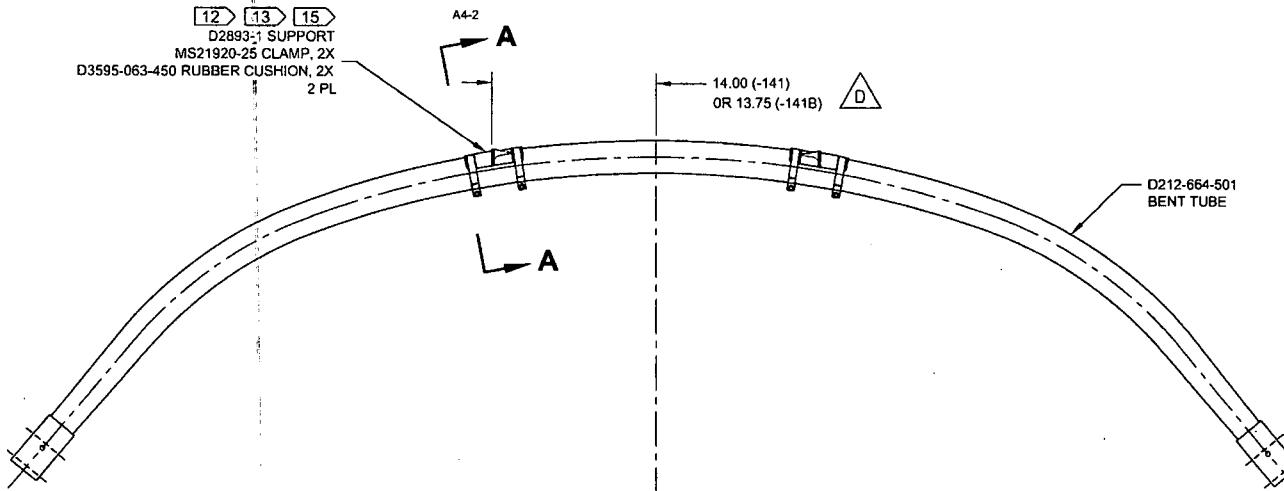
8 7 6 5 4 3 2 1

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

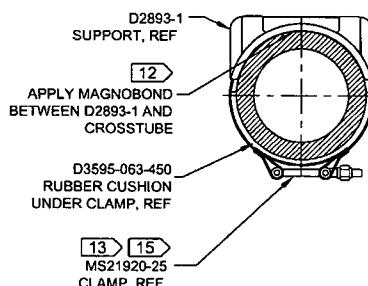
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



D212-664-141/-141B  
ASSEMBLY DETAIL

w/o 57910



SECTION A-A DS-2  
SCALE 4X

DESIGN	PH	DART AEROSPACE LTD
DRAWN	RF	HAWKSLEY, ONTARIO, CANADA
CHECKED	Q	DRAWING NO.
MFG. APPR.	Q	REV. D
APPROVED	AD	SHEET 2 OF 4
DE APPR.	AD	TITLE
DATE	09.09.30	SCALE
		XTUBE ASS'Y (205/212/412 HI FWD) NTS

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RELEASED  
2009-10-29  
W

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

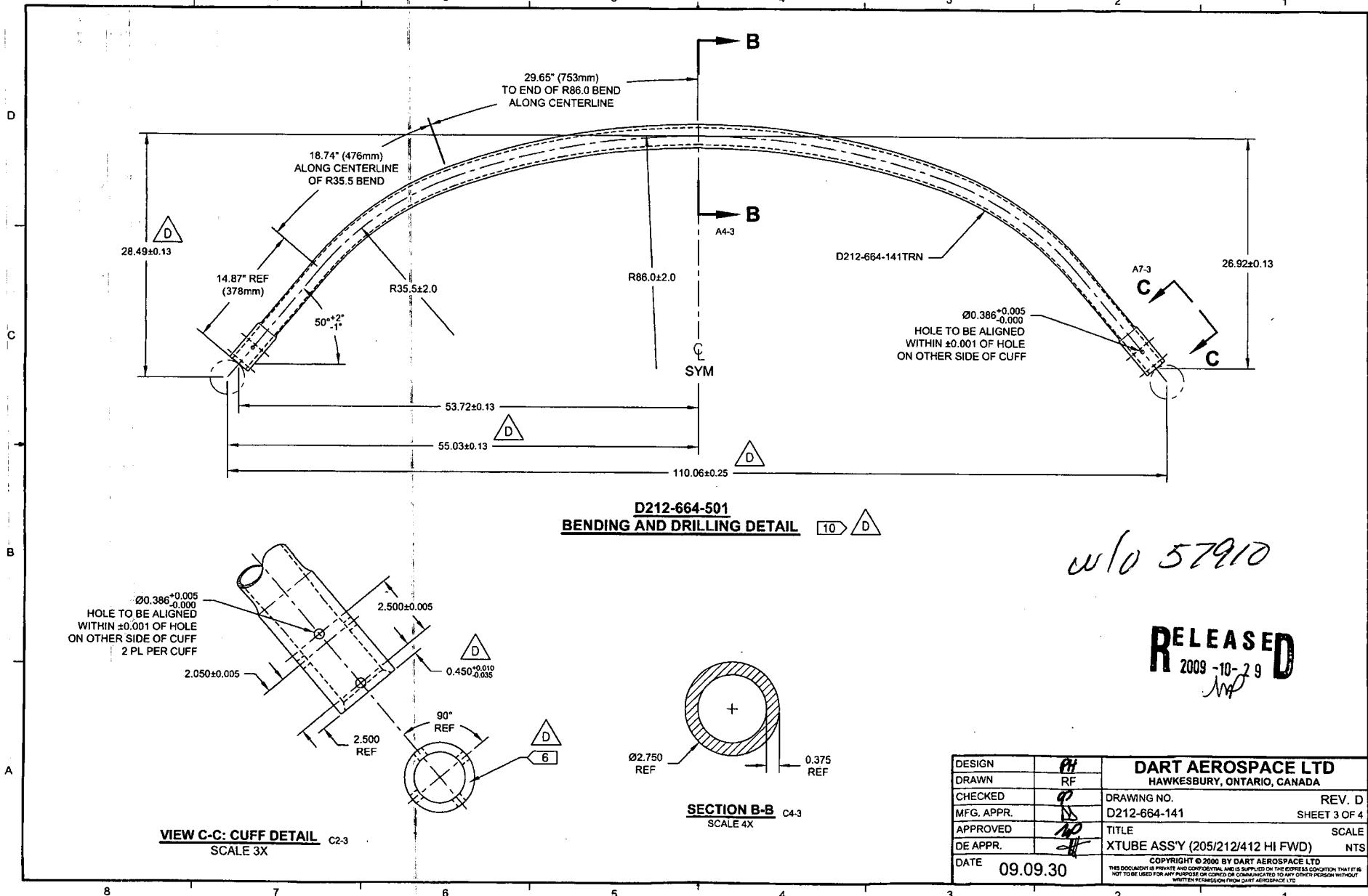
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

8 7 6 5 4 3 2 1

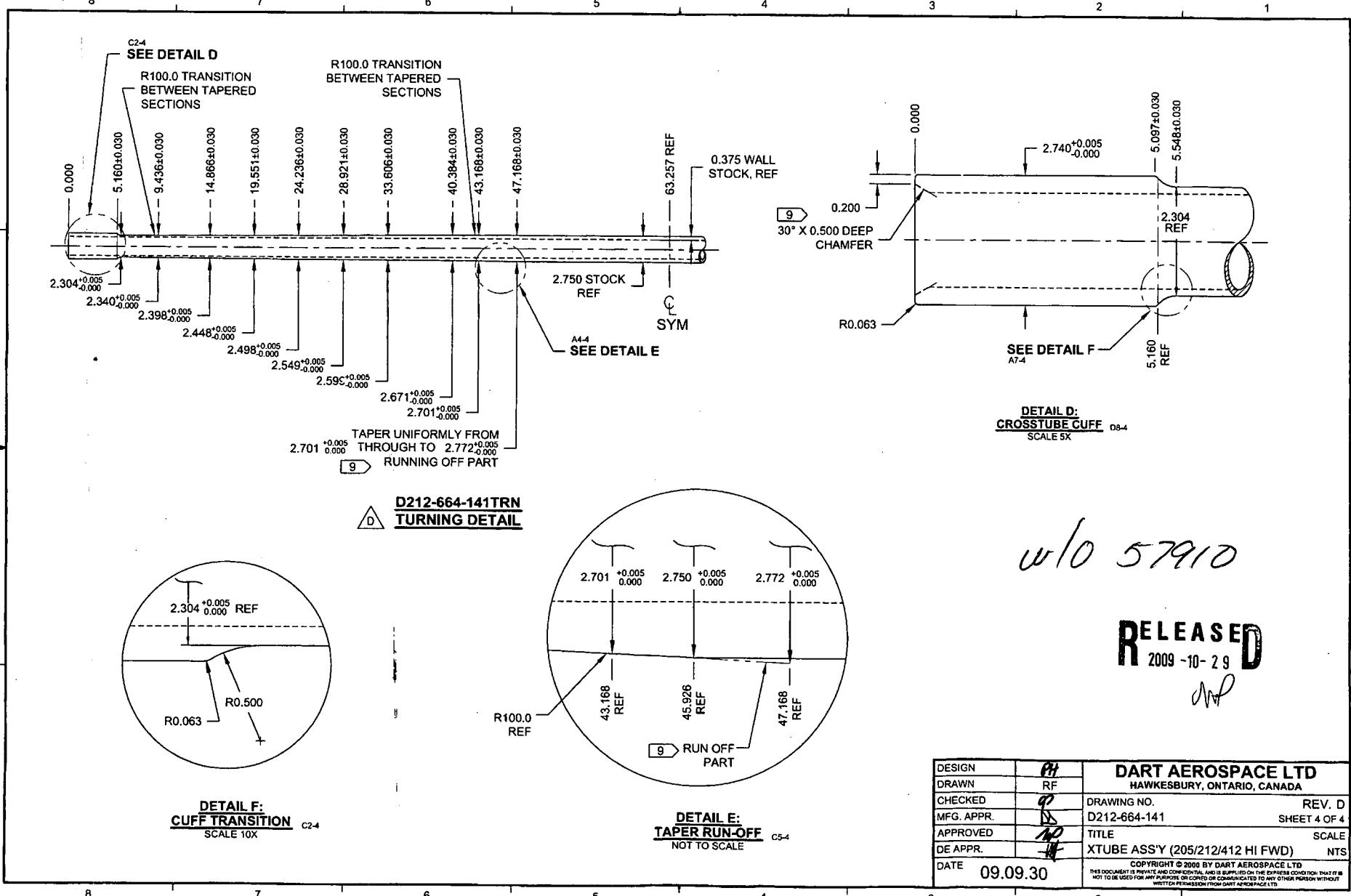


W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

## LIQUID PENETRANT TEST REPORT

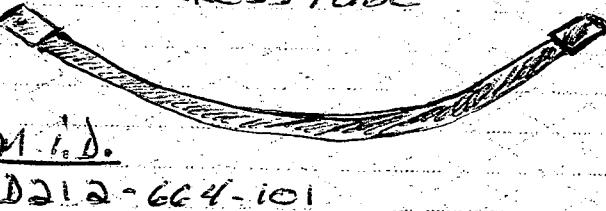
P- 05483

CLIENT DART AEROSPACE DATE APRIL 22/2010  
 ATTENTION LINDA LACERCE / CHANTIER TIME 18:30 - 06:71  
 ADDRESS 1370, 14 BURDEEN ST. AM  PM   
HAWKES BAY ON  
 PROJECT F.P.I. CL CROSS TUBE (4)  
 ITEM(S) EXAMINED JOB# SEE W.A Below

JOB DESCRIPTION	PROCEDURE NO. LT- <u>002</u>	REV./DATE	TECHNIQUE NO. LT- <u>2</u>	REV./DATE <u>2005</u>
PART No.	MATERIAL <u>ALUMINUM</u> THICKNESS <u>—</u>			
SCOPE	<u>WET FLUORESCENT LIQUID PENETRANT INSPECTION CARRIED OUT ON 100% EXTERNAL SURFACE</u>			

TEST DETAILS				
METHOD	<input checked="" type="checkbox"/> FLUORESCENT	<input type="checkbox"/> VISIBLE	<input checked="" type="checkbox"/> WATER WASH	<input type="checkbox"/> SOLVENT REMOVABLE
FAMILY BRAND	<u>MAGNAFLUX</u>			
PENETRANT	<u>ZI-67</u>	MINIMUM DWELL TIME	10 MIN.	LIGHTING EQUIP. <input type="checkbox"/> FLASHLIGHT <input type="checkbox"/> TROUBLELIGHT <input type="checkbox"/> OUTPUT > 1000 $\mu$ W/cm <sup>2</sup> <input type="checkbox"/> AMBIENT < 2 fc
PENETRANT REMOVER	<u>ABCO</u>	MINIMUM DRY TIME	>10 MIN.	OTHER
DEVELOPER	<u>SKD-30</u>	MINIMUM DWELL TIME	10 MIN.	LIGHT METER S/N
DEVELOPER TYPE	<input type="checkbox"/> NON AQUEOUS	<input type="checkbox"/> AQUEOUS	<input type="checkbox"/> DRY	CAL DUE DATE <u>MAY-10-2008</u>

TEST SURFACE				
SURFACE CONDITION	<input type="checkbox"/> AS GROUND	<input type="checkbox"/> AS WELDED	<input type="checkbox"/> MACHINED	<input type="checkbox"/> SHOT BLASTED
SURFACE TEMPERATURE	<input type="checkbox"/> < -4°C/ 20°F	<input type="checkbox"/> -4°C/ 20°F TO 10°C/50°F	<input type="checkbox"/> 10°C/50°F TO 52°C/125°F	<input checked="" type="checkbox"/> CLEAN BARE METAL
RESULTS- ( <input type="checkbox"/> METRIC <input type="checkbox"/> IMPERIAL )	<input type="checkbox"/> > 52°C/125°F			

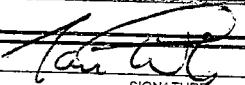
<p><u>WET Flu. LP.i. on 100% EXTN. SURF.</u></p> <p><u>1 CROSS TUBE - W.O. S7909 ✓</u>  <u>2 CROSS TUBE - W.O. S7910 ✓</u>  <u>3 CROSS TUBE - W.O. S7620 ✓</u>  <u>4 CROSS TUBE - W.O. S7621 ✓</u></p> <p><u>NO REJECTABLE INDICATION WAS DETECTED AS PER STANDARDS APPLIED</u></p>	<p>"CROSS TUBE"</p> <p>ITEM I.D.  <u>#1-D212-664-101</u></p>  <p>10 OCT 13</p>
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## Scope of Services

The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc., based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

## SIGNATURES

CLIENT REPRESENTATIVE 		DTR # <u>E-44821</u>
TECHNICIAN (SIGNATURE): 	SIGNATURE	REPORT REVIEWED BY:
NAME (PRINT): <u>Vives de Montero</u>	—	NAME <u> </u> INITIALS <u> </u>
CGSB LEVEL <u>2</u> SNT LEVEL <u>2</u>	2 <sup>nd</sup> TECHNICIAN CGSB LEVEL <u> </u> SNT LEVEL <u> </u>	CGSB REG. NO. <u>3049</u>
CGSB REG. NO. <u> </u>	CGSB REG. NO. <u> </u>	CGSB REG. NO. <u> </u>